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MWRA'S WALPOLE RESIDUALS LANDFILL
IMPACT ON LOCAL
DEPARTMENT OF CORRECTION
FACILITIES

PREPARED FOR
OFFICE OF PROGRAMMING
DIVISION OF CAPITAL PLANNING AND OPERATIONS
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IMPACTS OF MWRA'S WALPOLE RESIDUALS LANDFILL ON LOCAL DEPARTMENT OF CORRECTION FACILITIES

INTRODUCTION

This study has been conducted by the Division of Capital Planning and Operations (DCPO) at the request of the Department of Correction (DOC). The DOC has long felt that their concerns about the impacts of MWRA's residuals landfill on their Walpole and Norfolk facilities had been inadequately addressed in the environmental review process.

The DOC made its request for this study on November 4, 1992. DCPO accepted the request and began work on November 24, 1992. A draft report was submitted on December 23, 1992. This final report incorporates comments received on the draft report from DOC and DCPO.

METHODOLOGY

Due to the limited time allotted for this project, the tasks primarily consisted of a review of existing study reports, draft and final EIR and EIS, miscellaneous correspondence and articles, and construction plans. Interviews were conducted and visits were made to the proposed landfill site and MWRA's Quincy sludge processing facility.

The focus of the study was provided by the DOC in a statement of their concerns, which included water supply, odors, noise, security, traffic, loss of facilities, and fire.

BACKGROUND

The Walpole-DOC site was selected after what had been deemed a flawed process by several organizations and individuals. The controversy over the suitability of the site continues today after six years of study and evaluation by proponents and opponents.

The proposed Walpole landfill is to be situated on a 94-acre parcel of land which has been transferred to the MWRA from the DOC. The area of this parcel to be landfilled comprises 39 acres and will have a total filled capacity of about 3 million cubic yards. The final height of the proposed landfill is planned to be at elevation 335 which is about 35 feet higher than the top

of Cedar Junction's security wall. The purpose of the landfill is to provide a depository for grit and screenings on a regular basis and for dewatered sludge and/or dried pellets on an overflow and emergency basis. The projected landfill life is from 75 years, if only used for grit and screenings, to 2 years if the pelletizing facility is totally shut down and all dewatered sludge has to be landfilled.

The attached locus map shows DOC facilities, the proposed landfill site and truck routes.

MWRA has developed several scenarios (cases) which cover a complete range of landfilling requirements. These are summarized here to provide an understanding of the magnitude of operations along truck routes and at the landfill. The variation of the indicated truck loads is necessary because actual sludge and pellet volumes are dependent on the reliability and effectiveness of dewatering and pelletizing equipment and MWRA's success with pellet marketing.

Case 1 — Grit and screenings only. All sludge pelletized and marketed

Case 2 — Grit and screenings plus excess dewatered sludge due to one pelletizer being out of service

Case 3 — Case 2 plus 50% of pellets produced

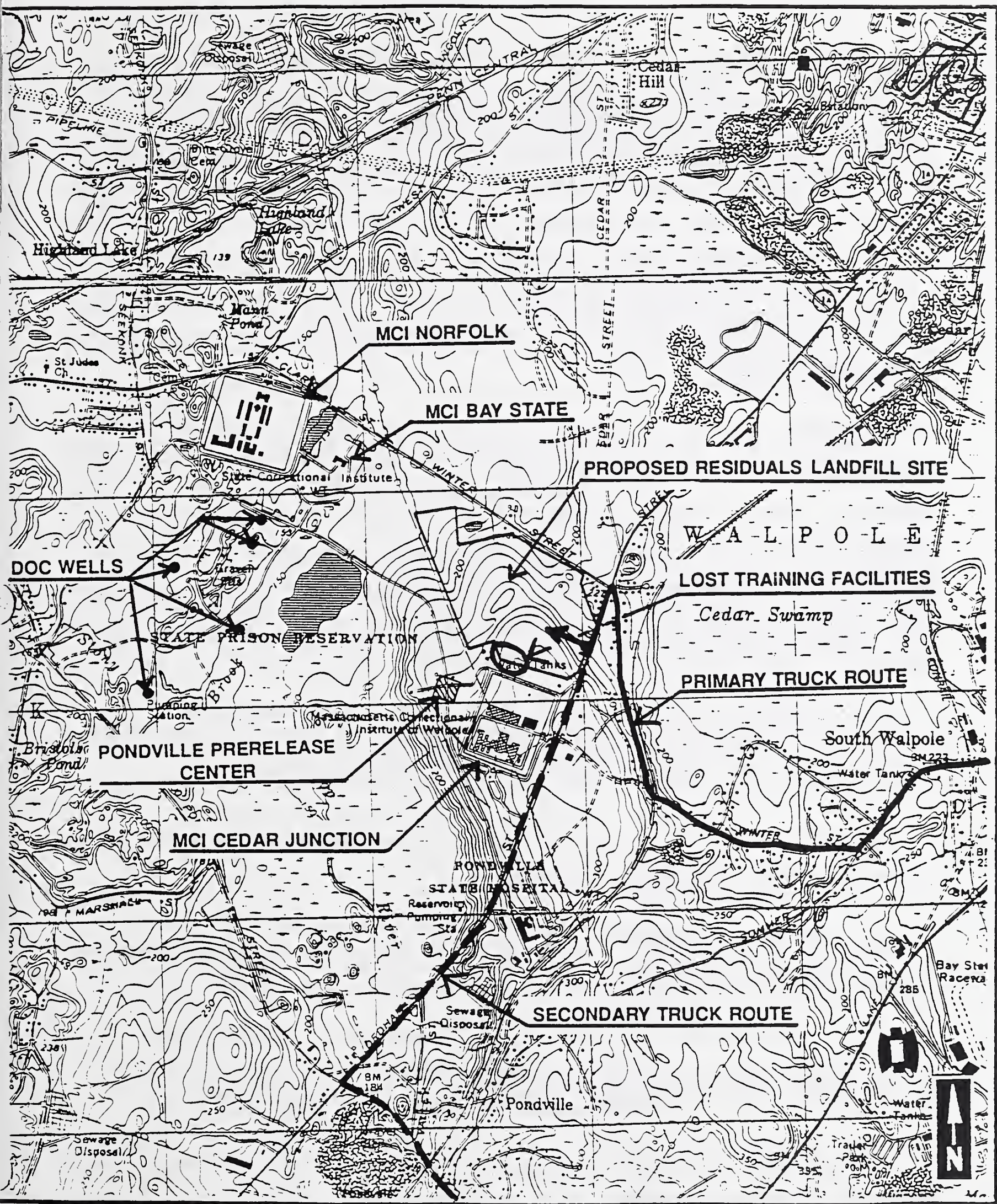
Worst Case — Grit and screenings plus all dewatered sludge

Case	Residuals Trucks/Day (1)	Soil for Cover & Bulking Trucks/Day (2)	Total Trucks/Day (3) (4)
1	3 – 4	0 – 2	3 – 6
2	4 – 15	0 – 34	4 – 49
3	9 – 22	0 – 50	9 – 72
Worst	50 – 60	112 – 135	162 – 195

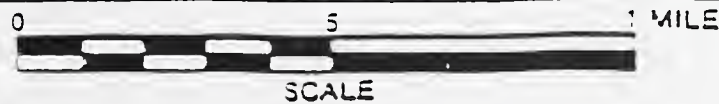
(1) FEIR Vol. 1, pp. 4-28 & 4-29.

- (2) Assumes a bulking-cover ratio of 2.25:1 and that some excavated soil will remain on site to be used during the early filling of each phase.
- (3) Does not include truck traffic associated with periodic construction of new phases and capping of old ones. These activities could add up to 59 additional trucks per day for 3–6 month construction periods. FEIR Vol. 1, pp. 4–40.
- (4) Numbers indicate round trips. A sensitive receptor along a truck route will thus be exposed to twice this number of truck passes.

While it is not prudent to expect that Case 1 will always apply, a more reasonable assumption is suggested to be Case 1 throughout the year and Case 3 during the four peak months, assumed to be June – September where 9 – 72 daily truck round trips will occur. Under worst case or near worst case conditions, it is likely that the landfill would be overwhelmed with traffic, sludge and cover material. Coupling such an event with inclement weather could make orderly landfill operations impossible, or at least set up conditions for massive odor releases and noise generation.



BASE MAP USGS & MWRA



LOCUS MAP

OVERVIEW OF IMPACTS

The Environmental Impact Reports (DEIR & FEIR) prepared by MWRA and the draft and final supplemental Environmental Impact Statements (DSEIS & FSEIS) prepared by EPA for the Residuals Management Facilities Plan (RMFP) do not adequately address the impacts of the proposed residuals landfill on the Department of Correction (DOC) facilities in the area. There are four of these facilities, housing a total of around 2,000 inmates, within 1/2-mile of the proposed landfill. The closest and most sensitive are Cedar Junction, the State's only maximum security prison, and Pondville Prerelease Center. They are located within a few hundred feet of the proposed landfill.

The EIR's and EIS's do not recognize the prison facilities as sensitive receptors but rather place them in the same category as civilians living in the area. This was an incorrect assumption. Unlike the civilians, who are free to move about, the inmates are around-the-clock potential receptors of environmental hazards and annoyances and are more likely to overreact, perhaps violently, to environmental disturbances such as odors and noise. The inmates have a higher incidence of diseases than the general public such as HIV, AIDS, hepatitis, and tuberculosis. These conditions may be aggravated by airborne pollutants from the landfill.

The loss of the prison's water supply would be disastrous as there are no other prisons in this State with the capacity to accommodate the inmates held at these facilities.

The Department of Correction has other concerns about other issues, such as internal and external security and loss of ancillary facilities.

This report voices the DOC's concerns, summarizes those efforts to date to address them, points out the need for additional work, and offers suggestions for mitigation.

1. CONCERN: How will the prison community water supply be protected?

There has been a great deal of effort directed towards the identification of hydrogeological boundaries of the zones of contribution for the prison well field and whether Zone II extends

under the proposed landfill. The hydrogeological study prepared for MWRA and contained in Vol. I of the FEIR determined that "The proposed landfill site is over 1,000 feet from the Zone II boundary at its closest and the proposed landfill footprint is over 1,500 feet from the boundary" and "That only a small portion of the proposed landfill footprint and site are within the Zone III area".

Subsequent reviews of the MWRA hydrogeological work by Groundwater Consultants, Inc., Beverly, MA, April 28, 1989 and November 3, 1989, R.W. Gillespie & Associates, Sanford, ME, January 1991, conclude that there is sufficient evidence to indicate that Zone II for the prison wells extends under the proposed landfill. All parties seem to agree that the proposed landfill lies at least in part, in the zone of contribution for the prison wells and that contamination from a leak in the proposed landfill could eventually reach the prison wells. The travel time for any such contamination is predicted to be from two to thirty years.

Since there is a possibility for contamination of the prison wells by landfill leachate in as little as two years, agreements and facilities must be put in place at the outset to replace the prison community's water supply. Suggested mitigating measures for this concern include:

- (1) An agreement with the Town of Walpole to supply up to 0.5 MGD to the prison community. Since Walpole does not currently have sufficient supplies to meet this additional demand, one of the following options would be required to increase Walpole's water supply:
 - (a) Installation of new municipal wells having a minimum safe yield of 0.5 MGD and improvements to the Town's distribution system where necessary to deliver water to the prison community water system.
 - (b) Provision of the necessary improvements to both the Norwood and Walpole water distribution systems to facilitate the transfer of up to 0.5 MGD of MWRA water to the prison system.

(2) Construction of a dedicated water main from MWRA's system to the prison system.

(3) Construction of a water treatment plant for the prison community. The plant's design would incorporate the necessary processes and flexible operating modes to be able to remove the contaminants expected to be contained in the proposed landfill leachate.

2. CONCERN: To what extent will air pollution/odors be generated by landfill construction and operation, and what are the impacts on the prison?

Both the EIR and EIS presented essentially qualitative assessments of air quality and odor impacts at the proposed Walpole residuals landfill. EPA noted that a literature review conducted during preparation of the DSEIS found no available information as a basis for predicting odor impacts at residuals landfill other than qualitatively. The DSEIS (pp. 5-33) noted that hydrogen sulfide and ammonia could be emitted from dewatered sludge brought to the landfill and combine with odor from grit and screenings. The DSEIS concluded that, "No significant impacts are expected at the Walpole MCI site in the areas of air quality or odors under any operating conditions," (DSEIS, pp. 6-1) and that proper management procedures such as daily cover would acceptably mitigate potential odors from grit, screenings and sludge.

The FEIR addressed dust and odor as the two air quality issues of concern at the site; stating that grit and screenings are expected to have the most objectionable odor. Pellets were characterized as having no objectionable odor and dewatered sludge as having only a mild odor (FEIR, pp. 4-5). Gas vented from completed portions of the landfill is not expected to cause odor problems because of the relatively small quantities, dispersion and major constituents (i.e. methane, carbon dioxide, hydrogen, oxygen and nitrogen) being benign with respect to odors. Two mitigation measures are mentioned: (1) water for dust control and (2) lime addition (to grit and screenings) for odor control, most likely at the headworks. Site buffer distance and depressed operating areas were also discussed as mitigating factors for air quality impacts. The FEIR concluded that neither dust nor odors would be a significant problem offsite.

The Draft Conceptual Design report for the residuals landfill (April 1992, revised October 1992) addresses sludge odor control, stating that, "Odors not suppressed by soil cover will be reduced by the application of lime over bulked soil/sludge mixture" (pp. 8-19). The report also addresses the additional equipment requirements necessary to handle emergency conditions with sludge deliveries in excess of 200 wet tons per day. This situation corresponds approximately to the scenario of maximum sludge production of 230 dtpd at 25% solids with one of the six dryers out of service, when 45 dtpd of excess sludge would need to be landfilled. Other circumstances, for example concurrent delivery of pellets to the landfill, would further increase equipment and labor requirements.

During the four peak months, assumed to be June - September, the average daily sludge production is projected to be 230 dt/day. Pelletizer through put at 25% solids is projected at 37 dt/day/ pelletizer, 222 dt/day total. This leaves 8 dt/day (32 wt/d or 36 cy/d) of dewatered sludge to be landfilled. For each pelletizer out of service, the quantity of sludge to be landfilled increases by an additional 170 - 180 cy/day, or 6 - 7 truckloads.

Experience elsewhere with anaerobically digested sludge has shown that objectionable odors can be a problem during landfilling especially when "working" the landfill (personal communication, Tom Landry, Superintendent WWTP, Pittsfield, MA). It is impractical to work a sludge landfill during wet weather. Thus sludge and/or sludge pellets are likely to pile up until they can be spread and covered, an operation that invariably leads to odor releases. The pellets produce significant odors after being wetted. Aged dry pellets are also odor producers.

The impact of local meteorological conditions on movement of odors offsite has not been addressed. Wind data are available from the Blue Hill Observatory in Milton, MA. Review of wind direction data for 1990, 1991, and 1992 indicates that Cedar Junction would be downwind of the landfill site 7 to 13 percent of the time during June, July and August. The oldest and largest part of Cedar Junction does not have air conditioned cell blocks. One cell block has no windows. Ventilation is provided by roof top fans which blow outside air into the cell block. The other cell block is ventilated by means of operable windows. Thus outdoor odors and other airborne pollutants are drawn directly into the cell blocks, where the inmates and guards are forcibly exposed to them.

Scientists are only recently taking an in-depth look at the relationships between odors and mental states such as depression, migraine, hallucinatory and degenerative disease. While there is little or no conclusive evidence today, it is reasonable to assume that malodorous air could cause undesirable reactions in confined inmates. This has been substantiated in studies performed in Illinois which concluded that bad odors trigger aggressive behavior, particularly in males. This is applicable to inmates and guards. Likewise, odors and other airborne pollutants could aggravate the medical condition of inmates in poor health.

The environmental documents do not thoroughly address the emergency and worst case operational conditions for the landfill. Volumes of sludge, pellets and cover soil that may have to be handled in the peak summer months could easily be 5 to 20 times or more than the quantities of grit and screenings only. Under these conditions, equipment breakdown or unavailability, inclement weather or other factors could lead to delays in the processing and disposal of residuals and contribute to increased potential for odor generation. Therefore, an overall operational plan is needed that focuses on equipment, labor and procedures to deal with possible sludge and pellet deliveries as well as the normal grit and screenings.

It is not likely that the generation and release of odors from this site can be avoided. Mitigating measures should therefore be implemented to minimize odor releases. Suggested mitigating measures for this concern include:

- (1) The continued commercial landfilling of grit and screenings, thus avoiding the disposal of these residuals in the proposed Walpole landfill; or
- (2) The development of a procedure for thorough mixing of a lime product with the grit and screenings prior to their delivery to the landfill.
- (3) Dewatered sludge should be mixed with a lime product prior to delivery to the landfill. There is liming equipment for this purpose at the Quincy residuals facility, but it has limited capacity. Therefore, the liming capability should be increased to accommodate the total expected production of dewatered sludge.

- (4) Since wet pellets are odor producers, the addition of a lime product to these should also be considered prior to landfilling, particularly during wet weather.
- (5) The application of cover will help control odors. The landfill operations plan should call for more frequent applications during damp hot weather.
- (6) To prepare sludge and perhaps pellets for landfilling, it will be necessary to mix these residuals with soil materials for structural stability. Since this will be an all-weather operation, a paved, covered mixing area outfitted with appropriate mixing equipment should be provided at the landfill.

3. CONCERN: To what extent will noise generated during construction, operation, and truck traffic impact the prison community?

The majority of the information and analysis of noise impacts is contained in the two draft environmental documents (DEIR and DSEIS) and only summarized briefly in the finals. The DEIR included results of noise measurements at five locations around the site, including one (WLP-08-1) at the Cedar Junction prison opposite the north security wall and west of the training building. This location is the same distance from the landfill site boundary and center as another, WLP-08-2, near the Winter Street/Route 1A intersection, for which future noise level predictions were made (DEIR, Table 2.7-4). The typical equipment scenarios used in the noise impact predictions appear to be representative of normal operations for grit and screenings delivery, thus not inclusive of possible concurrent activities such as landfill construction, delivery of excess sludge and/or pellets, and bulking and cover material. Maximum increases in noise levels at WLP-08-2 (near existing residences) of 5dBA (L_{90}) and 1dBA (L_{EQ}) were predicted. The DEIR concluded that noise impacts associated with normal operation of the landfill were not expected to be significant. It should be noted that existing ambient noise levels at WLP-08-1, the prison wall location, were generally lower than at the other stations closer to Route 1A and/or Winter Street, meaning that addition of a given noise level could be more noticeable than at an already noisier location.

The DSEIS also included a noise impact assessment of landfill operation, in Chapters 4 and 5 of that document. In discussion of baseline conditions, the DSEIS (Section 4.5) referred to the noise measurement data in the DEIR, noting that meteorological conditions during noise monitoring were favorable for accurately measuring ambient noise. The ambient noise levels at the prison wall location were characterized as "normal suburban residential." In the introduction to Section 4.5, it was noted that, in general, noise impacts occur within close proximity to the noise source and that significant impacts beyond 1,000 feet of a residuals site are unlikely. State regulations for noise emissions were discussed (Section 4.5.3.2), which allow an increase of 10dBA above ambient noise level.

The DSEIS, Section 5.6.4, evaluated noise impacts at the various receptor locations (which correspond to the locations used to measure ambient noise levels). The DSEIS concluded that, at the four closest receptor locations including Cedar Junction, "predicted noise emissions are loud enough to be considered a severe adverse noise impact" (DSEIS, pp. 5–78). The predicted noise level (L_{EQ}) at the prison wall, 62dBA, exceeds the significance level of 53dBA (average ambient background of 43dBA + 10dBA per state regulations) by 9dBA and is an increase of 15dBA (62dBA – 47dBA) over the existing average ambient noise level at that location. For reference, a 10dB increase would be perceived as a doubling of noise loudness (DEIR, pp. 2–122). The equipment scenario used for the DSEIS analysis was similar to that for the DEIR analysis but included one more vehicle and generally higher estimates of noise emissions.

Although the DEIR did not include a prediction of the noise level (L_{EQ}) at the prison wall to compare with the DSEIS prediction, "Impacts to MCI Cedar Junction, by virtue of the physical distance and a high masonry wall separating it from the site, were assumed to be less than those receptors identified in the worst case analysis" (FEIR Vol. 2, pp. 93–94, #162).

The DSEIS also mentioned (pp. 5–78) that noise impacts during construction of the landfill would be comparable to those predicted for normal operation due to the similarity of equipment used, but did not present an evaluation of simultaneous construction and operation activities which would involve numerous additional vehicles working on site.

It should be noted that the wall represents the only noise barrier available at the prison site. Due to security reasons, tall trees cannot be located close to the wall and, in any case, there is limited space between the landfill site boundary and prison wall.

From the review of the EIR and EIS noise impact assessments, there are several interrelated issues/questions that should be examined further:

- (1) The analyses do not appear to have considered the noise generation associated with additional activities besides normal grit and screenings landfilling; the worst case noise scenario should be based on all projected truck and landfill equipment activity for simultaneous grit and screenings processing, new phase construction, delivery of bulking and daily cover soil, and delivery and processing of excess sludge and pellets. This traffic and associated noise is significant in that it could represent a 20-fold increase over "normal" traffic associated with landfill operations. Also, mention was made of on-site rock crushing and blasting during construction, a noisy operation which should be included in the analysis as well.
- (2) The prison wall was assigned a 15dBA attenuation factor without any reference to support the reasonableness and validity of this assumption.
- (3) The effectiveness of the wall as a sound barrier decreases as landfill elevations increase. The latest design documents show the landfill top at elevation 335, or approximately 35 feet higher than the top of the prison wall, and 30 feet higher than in earlier studies on which noise impact assessments were based. A revised noise analysis should consider the decreasing noise attenuation effectiveness of the wall as landfill operations progress.
- (4) Noise impacts on the Pondville Prerelease Center were not considered for this 200 inmate facility which is near to but outside Cedar Junction's west wall — a wall which may reflect and amplify landfill operating noise received at this facility.

- (5) The impact of increased noise levels on prison security has not been considered. DOC staff rely on sound as well as sight to alert them to situations requiring attention in or outside of the prison yard. This issue is also important to personnel in the observation towers, where landfill noises would make it particularly difficult to detect other sounds.
- (6) There has been no consideration of potential psychological effects of daytime or night-time noise exposure on the prison population. The inmates and security personnel do not have the means of avoiding exposure available to many other residents who have freedom of movement.
- (7) Night-time operations may be necessary during some emergencies, i.e. pelletizing plant shutdown. An emergency operating plan is needed that addresses the handling of potentially very large quantities of sludge and/or pellets in addition to normal grit and screenings.
- (8) No consideration was given to the possibility of night-time truck traffic, which could occur in the worst case scenario. Truck noise impacts would be greater at night with other background noise levels much lower than during the day. Also, Route 1A, the alternate truck route for access to the landfill, parallels the eastern wall of the prison. The road is as high as the top of the wall in places, thus decreasing its effectiveness as a sound attenuation barrier.
- (9) The FSEIS concluded that severe noise impacts would result from the project at the four closest receptor locations (including the prison) and identified two mitigation measures that should be explored: (a) conduct landfill operations as much as possible in a depression surrounded by berms, and (b) minimize use of vehicle back-up signals. These mitigation techniques have not been evaluated and it is uncertain whether significant noise reductions would result.

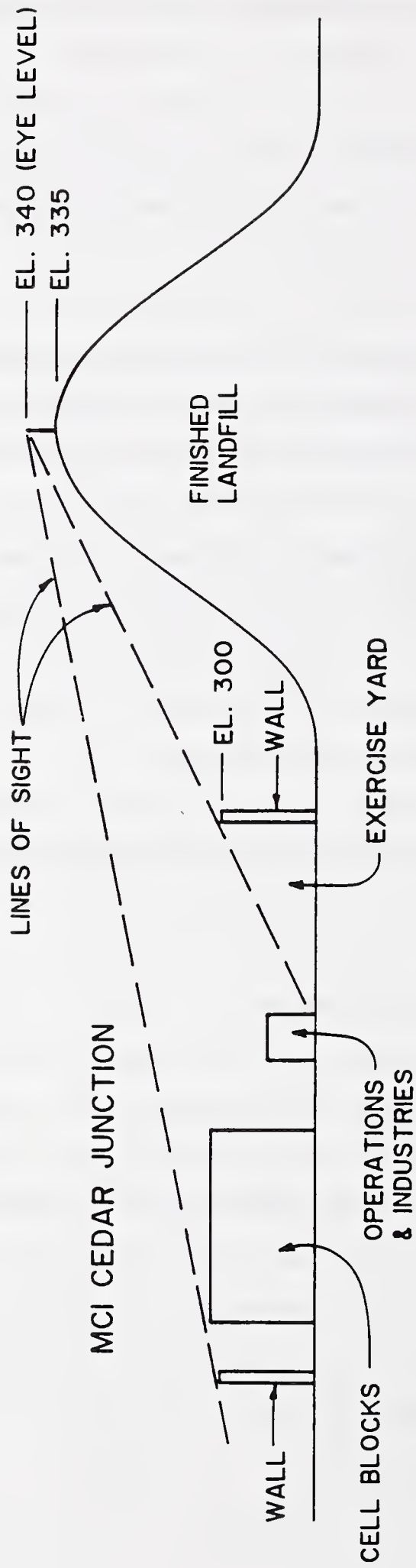
4. CONCERN: Will the top of the landfill provide a vantage point for observation of the prison yard?

Prison walls serve two security purposes: 1) to keep inmates in; and 2) to prevent uncontrolled communication between prisoners and persons outside the facility. Therefore, direct observation of the prison yard is considered a breach of security.

According to construction plans prepared by Wehran Engineering, October 1992, the high point of the finished landfill will be elevation 335. This high point is approximately 800 feet from the prison wall, which has a top elevation of about 300 feet. Thus an observer standing on the high point with eye level five feet above the ground would be able to observe the prison yard south of a line that is about 400 feet from the north wall. This line is approximately the north side of the operation and industrial buildings which border the exercise yard. (See schematic diagram of sight lines.)

Suggested mitigating measures for this concern include:

- (1) Lowering the proposed high point of the landfill to the level of the top of the wall; or
- (2) In addition to the planned landfill fencing,
 - (a) Provision of permanent night time illumination of the landfill above elevation 300; and/or
 - (b) Provision of infrared sensors or other electronic means to detect intruders on the landfill.



NOTE:
 VERTICAL SCALE
 EXAGGERATED FOR
 CLARITY

SCHEMATIC DIAGRAM OF SIGHT LINES

SCALE: HORIZ. 1"= 400'
 VERT. 1"= 40'

5. CONCERN: What are the provisions for landfill security?

DOC maintains secure areas around its facilities in which unauthorized personnel are prohibited. The landfill site, which is within 360 feet of Cedar Junction's prison wall and the unfenced Pondville Prerelease Center, has been removed from DOC control.

It is of utmost importance that DOC prevent uncontrolled communications with inmates. Therefore, this area between the prison facilities and the proposed landfill must remain secure from intrusion by unauthorized persons.

Construction plans for the landfill prepared by Wehran Engineers indicate that a chain link fence will surround the landfill. Also, clearing of the landfill site will remove vegetative cover, permitting better visual observation of activities on the landfill site by corrections officers.

The following issues should be addressed now:

- (1) When will the fencing be installed?
- (2) How will access to the landfill be controlled?
- (3) There should be a formal security plan.

Suggested mitigating measures for this concern include:

- (1) Installation of fencing to completely surround the site at the beginning of construction. Provide access road adjacent to and inside fence line to facilitate inspection and repair. Allow no construction or operating personnel outside this fence.
- (2) Control access to the site by a guard who would issue identification badges to all who enter the site. The badges would be displayed while on site and

returned upon departure. A similar system could be used for transient vehicles.

- (3) Provision of night time illumination of the southerly and westerly sides of the landfill site.
- (4) Conferring with DOC officials and provide additional tree removal if requested to enhance security.
- (5) Preparation of a site security plan to be approved by DOC.

6. CONCERN: What is the potential for landfill fires or toxic gas release?

Flexible membrane lining (FML) once installed will be buried and not subject to ignition. Stockpiled material, on the other hand, could be set afire by someone intent on the task.

Smoke or toxic gas releases which could effect the health of inmates would constitute a serious threat to security if emergency evacuation were required. It has been estimated that controlled evacuation would take at least 16 hours. At a minimum, less threatening incidents, for example, minor smoke inhalation would likely give rise to real or imagined health issues or, as in the case of odors, incite violent behavior in some individuals.

The possibility of fires has been acknowledged in the FEIR pp. 4-12 which states: "Water for fire protection must also be available in the event of an emergency." The primary fire hazard lies in the possible ignition of pellets, either accidentally or intentionally. If the entire pellet output is brought to the landfill, the daily mass of 220 tons (330 cy) will form a significant fuel pile. There is no mention of plans to use volatile chemicals at the landfill for odor control or other purposes. There is also no mention of plans to store motor fuel at the site.

The following issues should be addressed now:

- (1) Who will provide fire fighting personnel and equipment.
- (2) What is the source of fire fighting water?
- (3) What measures can be taken to reduce pellet flammability?
- (4) Are there plans to store or use volatile or flammable chemicals including motor fuels on site?

Suggested mitigating measures for this concern include:

- (1) Formal agreements with the Walpole and/or Norfolk Fire Departments for fire protection; or
- (2) Having fire fighting equipment and trained personnel on-site.
- (3) Provision of on-site fire water storage tank(s) if fire fighting flows from the Walpole water system are insufficient.
- (4) Provision of backup landfill operating equipment to ensure timely encapsulation of delivered pellets.
- (5) Prohibition of FML stockpile on or near the site.

7. CONCERN: Will the landfill attract gulls and provide a breeding ground for vectors?

Very little attention has been paid to this concern. It has been reported that screenings from Deer island contain a considerable amount of organic waste including recognizable foodstuffs. This material, together with other screenings and grit, will be brought to the landfill daily at the projected rate of 3–4 truck loads. This will be sufficient volume to attract gulls to the area.

Cedar Junction has had vector problems, and wild geese are presently a nuisance in the prison yard. It is likely that the prison yard will be attractive to gulls too.

If the landfill is properly covered each day, vectors should not pose a significant problem because breeding sites will be constantly changing. The sedimentation ponds, however, will require attention in the summer months to control mosquitoes.

This concern could be mitigated by redirecting grit and screenings from this landfill to commercial landfills as is presently done. Operating sludge monofills do not report problems with insects or other vectors.

8. CONCERN: The DOC stands to lose its training facilities at Cedar Junction and a prime expansion site.

Cedar Junction MCI operates a training facility for corrections officers adjacent to the prison's north wall. Indoor and outdoor training activities are conducted here. Construction and operational activities at the proposed landfill will undoubtedly disturb the otherwise tranquil atmosphere at this facility and force its abandonment. A portion of this outdoor training area incorporates the Department of Correction's only firing range for Correction officers. The loss of the adjoining land to MWRA has forced the DOC to stop using the firing range for safety concerns.

A landfill on the proposed site eliminates a prime location for a new DOC prison facility. There are no other physically suitable sites on DOC property in the area. Therefore, there are no mitigating measures for this site loss. The loss of the training center can be mitigated by construction of new facilities at another location near Cedar Junction.

CONCLUDING COMMENTS

While it is hoped that the residuals management system will operate as planned, it would be folly not to expect and plan for occasional routine emergencies or worst case conditions which could overwhelm the landfill, especially when coupled with inclement weather.

The Department of Correction is concerned that the construction and operation of the proposed landfill will adversely affect their operations and security and that previous landfill impact studies have not treated their highly specialized facilities as separate sensitive receptors.

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Confidential DEP Memorandum, RE: Quality assurance for groundwater modeling at the Walpole site. From Peter Weiskel, Groundwater Section, to Rick Dunn, Residuals Program Manager, and Steve Lipman, Boston Harbor Coordinator, December 18, 1991.

"Land Transfer Legislation," Chapter 41 of the Acts of 1991 (MA).

Draft Conceptual Design, MWRA Residuals Landfill, MWRA, April 1992, revised October 1992.

Construction plans and specification for the proposed Walpole Landfill, prepared by Wehran Envirotech, August 1992.

Overview of the Proposed MWRA Wastewater Residuals Landfill Design and Mitigating Measures, Walpole, Massachusetts, MWRA, October 1992.

Letter from Ed Burns, So. Walpole, MA to Ken Silver, Consultant to JSI Center for Environmental Health Studies. Includes attachments summarizing wind speed and direction data for January 1990 – August 1992 from Blue Hill Observatory in Milton, MA, October 12, 1992.

Memorandum, RE: Walpole Sludge Landfill Facility. From Robert Cordy, Governor's Chief Legal Counsel to Commissioner DuBois (DOC), October 28, 1992.

Letter from Commissioner DuBois (DOC) to Commissioner Smith (DCPO) requesting study of residuals landfill impact on DOC facilities, November 3, 1992.

Draft report reviewing MWRA's Public Health Risk Assessment. Kenneth Silver, Consultant to JSI Center for Environmental Health Studies, December 4, 1992.

"Tuberculosis (TB)," *Union Leader*, December 1992.

Structure and Determinants of Psychophysiological Response to Odorant/Irritant Air Pollution, Annals of the New York Academy of Sciences, Volume 641, 1992.

Comments on Groundwater Impacts and Site Suitability, Proposed Walpole-MCI Residuals Landfill of MWRA Boston Harbor Project, Walpole, Massachusetts.

Quality Assurance in Computer Simulations of Groundwater Contamination, Paul K.M. van der Heijde, International Groundwater Modeling Center, Holcomb Research Institute, Butler University, Indianapolis, IN, undated.

MEETINGS & SITE VISITS

November 30, 1992

Introductory meeting in Walpole at offices of Brady & Nonac.

Attendees: James Brady, Walpole Prison Advisory Committee
Phyllis McLean, Walpole Prison Advisory Committee
Michael Williams, DCPO
Charles Deknatel, DCPO
Jeff Folts, Huntley Associates
Thomas Green, Huntley Associates

Summary: General background briefing about Walpole siting of MWRA residuals landfill.
Primary concern: disruption of prison population by landfill activities.

Toured proposed landfill site and surrounding area.

December 1, 1992

Meeting at MCI Cedar Junction.

Attendees: Ronald Duval, Superintendent, Cedar Junction
Brian Burgwinkle, Deputy Director, DOC
Charles Deknatel, DCPO
Thomas Green, Huntley Associates

Summary: Discussion of DOC's concerns about the affects the landfill could have on prison operations. Areas mentioned were odors, noise, vectors, water supply and accidental chemical releases. Only new part of Cedar Junction is climate controlled. Of the older part, one cell block has no windows and relies on forced ventilation. The other cell blocks have only natural

ventilation through windows. Thus the facility would be highly susceptible to odors, insects and chemical gases. Noise, particularly during nighttime operation of the landfill, could be disruptive to the prison population and to external security since the tower guards listen for activity outside the prison wall at night and rely on sound as well as sight to monitor activity inside and outside the compound walls.

Hazardous volatile chemicals such as chlorine must not be stored or used near the prison facilities. A release of such chemicals could have catastrophic consequences since the prison population cannot be quickly evacuated.

Water supply for the prison community comes from a well field near the Norfolk/Bay State facility. The total daily usage is about 400,000 gallons.

December 18, 1992

Toured MWRA's residuals processing facility in Quincy, MA.

Attendees: Michael Rivard, MWRA Residuals Management Department
 Jeff Folts, Huntley Associates
 Thomas Green, Huntley Associates

Summary: The facility was not in operation on day of tour. It is still experiencing some start-up difficulties. Most pellets are being rail shipped to Florida. Some pellets and dewatered sludge are being rail shipped to a commercial landfill in Virginia. There have been fires in the pellet storage silos caused by hot pellets. A pellet cooling system is proposed to alleviate this potential problem. Additional fire protection can be afforded by maintaining a nitrogen atmosphere in the silos.

Each pelletizing train is made up of a number of mechanical operations including a myriad of screw conveyors. It is not unreasonable to assume that at least one train will be frequently out of service for maintenance.

December 8, 1992

Thomas Green, Huntley Associates, interviewed Joanne Muti, Chairperson, Walpole Citizen Action Committee at the Walpole Library. Ms. Muti, who has been active with this siting issue from the beginning, provided anecdotal background information, copies of reports prepared for the Citizen Action Committee, other documents, and names of other resource people.

December 8, 1992

Thomas Green, Huntley Associates, interviewed Richard Mattison, Jr., Superintendent of Water and Sewer, and Margaret Walker, P.E., Assistant Town Engineer at the Walpole Municipal Building.

Walpole does not have sufficient water resources to supply the prison community. Walpole's water distribution system has an emergency connection to Norwood (MWRA water), but the distribution system does not have the capacity to transmit sufficient water (400,000 GPD) from Norwood to the prison system.

TELEPHONE CONTACTS

1. Tighe & Bond — David Healey. Designers of pelletization facilities. Initial operation 4 units at 30 dry tons/day/unit. Future operation 6 units. Liming facilities at Quincy site were part of interim plan and are not suitable for proposed operation. December 2, 1992.
2. City of Pittsfield WWTP — Tom Landry. WWTP has monofil for anaerobically digested, dewatered sludge, grit and screenings. Odors are generated particularly when landfill is worked. Cannot work landfill during inclement weather. Sludge is stockpiled during these conditions. The Pittsfield facility does not attract birds. December 3, 1992.
3. Burrillville WWTP — John Martin. Not currently landfilling sludge. This was small operation next to municipal landfill, thus odor source and bird attraction are not easily separated. December 2, 1992.
4. Hampden County Sheriff's Department — Tom Rovelli, Jail Superintendent. The former County Jail was located on the Connecticut River across from Springfield's Bondi's Island WWTP. There have been noxious odors associated with this WWTP in the past. Mr. Rovelli stated that there were odor complaints but no law suits or internal disturbances. Prisoners realized that the general population was being subjected to the same conditions. December 7, 1992.
5. Contacted State Environmental Regulatory Agencies in CT, NJ, PA, NH, ME and VA in an unsuccessful attempt to find any operations with comparable residuals monofil. December 4, 1992.
6. Cobb County, GA WWTP — Ed Chastain, Superintendent. Phototype pelletizing plant built here in 1979 by company that developed it. Enviro-Gro bought rights to process about 5 years ago, made improvements to it, and has operated it ever since. There are two pelletizer trains; the process works; there have been no major breakdowns, but there have been pellet silo fires. Pellets give off strong unpleasant odors when wet, i.e. stored uncovered outdoors, or wetted to extinguish fires. Chastain considers operational problems minor and the process viable. December 10, 1992.
7. New York City, Department of Water Pollution Control — Kosmas Vlahos, Engineer, Residuals Operations Section. NYC is continuing with its plans for a pelletizing facility. The plant will be similar to Boston's. The 300 dry ton/day plant should be operational in six months. December 7, 1992.
8. The Smell and Taste Foundation, Chicago, IL — Dr. Alan R. Hirsch, Director. Dr. Hirsch has recently completed work for the Illinois Attorney General concerning odor-induced

aggressive behavior in humans (especially males). It is his opinion that unpleasant odors will have adverse impacts on prison inmates and guards. December 21, 1992.

9. Rensselaer Polytech, NY — Dr. Robert Barron. Dr. Barron's work relates more to fragrances. He stated that there is literature to suggest that unpleasant environmental conditions such as heat and humidity, bad odors, noise, overcrowding, etc., trigger aggressive behavior.

